

SEDIMENTATION

Sedimentation is a physical water treatment process using gravity to remove suspended solids from water.^[1] Solid particles entrained by the turbulence of moving water may be removed naturally by sedimentation in the still water of lakes and oceans. Settling basins are ponds constructed for the purpose of removing entrained solids by sedimentation.

High density particles settle down due to gravity.

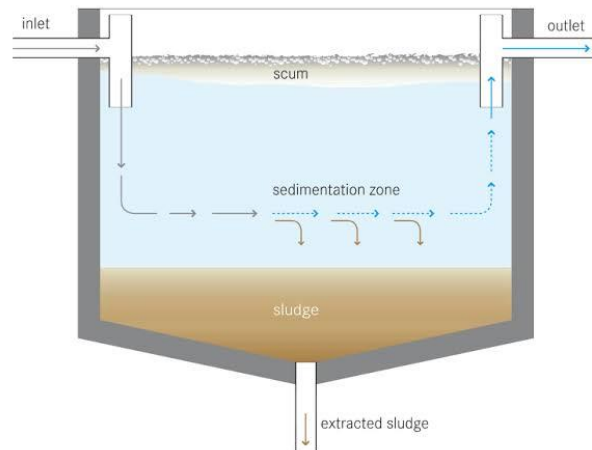
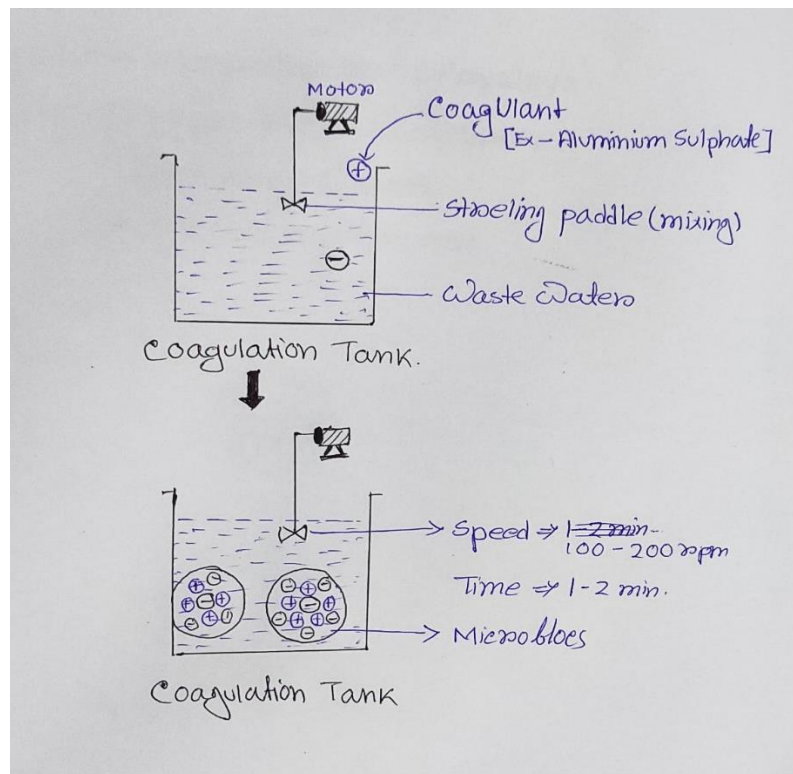


Fig: Sedimentation

COAGULATION

The process of removal of suspended solids in water by use of chemical agent is known as coagulation.

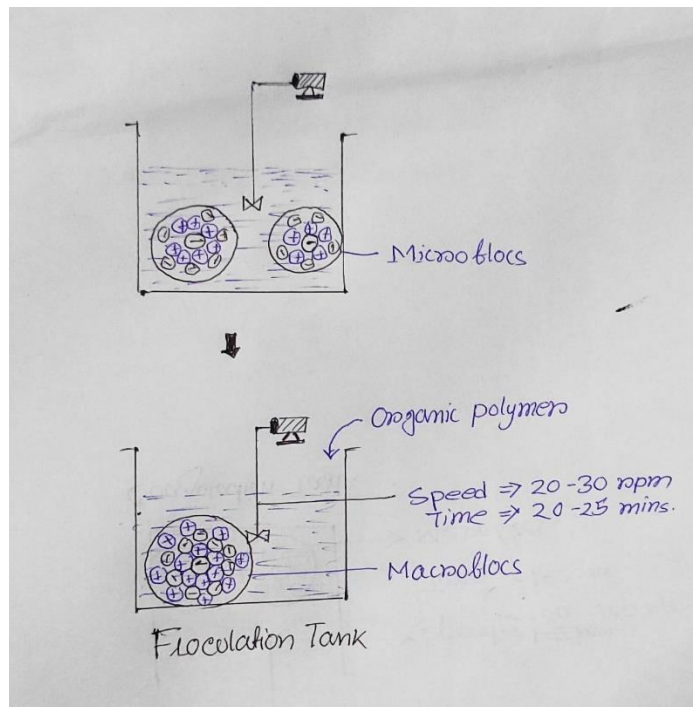
- Coagulants with charges opposite to those of the suspended solids added to the water to neutralize the negative charges on dispersed non-settable solids such as clay and organic substances.
- Once the charge is neutralized, the small-suspended particles are capable of sticking together.
- The slightly larger particles formed though this process are called microflocs and are still too small to be visible to the naked eye.



FLOCCULATION

In this process stirring or agitation to encourage the particles thus formed to agglomerate into masses large enough to settle or be filtered from water.

Polymer (coagulant acids) when added during flocculation step to help bridge, bind and strengthen the floc add weight and increase settling rate.



FLOTATION

Flotation is a separation technique that employs the use of gas bubbles as a transport medium. Suspended particulate matter that is hydrophobic or has been conditioned to be hydrophobic attaches to the bubbles and flows in the opposite direction of gravity towards the aqueous solution surface.

It is widely used in industrial waste water treatment plants, where it removes fats, oil, grease and suspended solids from waste water.

